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SUSTAINING THE KNOWLEDGE BASE OF

THE UNITED STATES AIR FORCE FOR FUTURE OPERATIONS

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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10 December 2015

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Biography

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Dr. Green began her career as an enlisted soldier, serving 8 years in the United States Army. After leaving active duty, she was employed for 2 years in the private sector with Operations Management International, Inc. Dr. Green was employed in multiple roles with the Department of the Army, Directorate of Information Management for 3 years. She was accepted into a 2 year Corporate Intern Program in 2006; and assumed a supervisory position in 2008, where she served for 2 years prior to joining the DLA, Human Capital Business Integration office in 2010.

Abstract

The purpose of this qualitative hermeneutics study was to determine through content analysis of historical data how the United States Air Force (USAF) can sustain its knowledge base by identifying a specific problem in relation to capturing, availability, and safeguarding knowledge based on multiple factors outlined in documents retrieved from primary USAF organizations. Data analysis produced ten themes associated with knowledge management and generated responses for all research questions. Exploration of current knowledge management technology outlined new areas of consideration for the USAF in relation to knowledge management. Study findings identified numerous opportunities for the USAF to reevaluate and enhance knowledge management processes and systems. The intent of the study was to highlight issues and recognize improvements for USAF knowledge management processes, proposing options for future requisition of knowledge management technology, and present recommendations to promote a viable solution to knowledge management for future consideration by USAF senior leaders.

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Introduction

The United States Air Force (USAF) employs numerous databases and repositories to maintain critical information in support of global missions. As technology continues to advance, ensuring proper knowledge management is vital to the future success of the USAF. An application of a cost effective knowledge management system (KMS) provides unlimited opportunities for the USAF to capture and safeguard mission critical information. According to the Air Education and Training Command, the USAF must "focus its transformation efforts to achieve superiority in the cognitive domain" to avoid a decline of capabilities.[1] This research paper uses a qualitative approach to argue that with numerous advancements in technology, the USAF must adopt a streamlined approach to knowledge management centered on a more innovative and agile solution to capture, increase availability, and safeguard mission essential information, which is reinforced in the statement of the problem.

Statement of the Problem

The problem for the study was the lack of a single knowledge management system to capture knowledge in the USAF. Although knowledge management systems center on technology, many organizations may overlook the amount of human intervention required to develop efficient systems and effective processes. A challenge facing the USAF in relation to knowledge management "is motivating people to share knowledge."[2] The current practices and tools applied by the USAF result in multiple inefficiencies to capture knowledge and exclude proper safeguards for future use. Because uncertainties exist adopting a single solution for knowledge management must align with frequent budget constraints and support overwhelming demands for USAF support, demonstrated in the purpose of the study.

Purpose of the Study

The purpose of this qualitative hermeneutics study was to determine through content analysis of historical data how the United States Air Force (USAF) can sustain its knowledge base by identifying a specific problem in relation to capturing, availability, and safeguarding knowledge based on multiple factors outlined in documents retrieved from primary USAF organizations. Previous research identifies a need to formalize knowledge management efforts in the USAF.[3] A qualitative study was appropriate to examine specific elements of data. The application of a qualitative study "allows researchers to ask different research questions and explore and understand phenomena from a contrasting perspective."[4] This approach provided the researcher with an advantage because it aided in identifying study limitations.

Limitations

Limitations exist in any type of research study. To ensure proper evaluation of all aspects of this qualitative hermeneutics study, possible limitations were identified. A qualitative hermeneutics study generated tremendous amounts of data and may constrain the management of information. Additional methods were required to narrow the scope of data to enhance analysis as identified in the scope of research for this study. The exclusion of research bias was necessary due to the incorporation of assumptions which are subjective in nature; hence, all information obtained for this study represented a clear and concise view of the subject matter. Previous statements represented an acknowledgment of possible limitations for the study and the following section includes the literature review and theoretical framework.

Literature Review and Theoretical Framework

The purpose of this qualitative hermeneutics study was to determine through content analysis of historical data how the United States Air Force (USAF) can sustain its knowledge

base by identifying a specific problem in relation to capturing, availability, and safeguarding knowledge based on multiple factors outlined in documents retrieved from primary USAF organizations. A literature review included topics that coincided with the central focus of the study. For this study, all information related to knowledge management was retrieved from academic journals, published books, reports, the Internet, and white papers. To support this study, the literature review explored the topics of knowledge management, history of knowledge management in the USAF, current findings in knowledge management, and the theoretical framework.

Knowledge Management

For many organizations, knowledge management is the distribution and storage of information. In the USAF, knowledge management is not a basic process. Knowledge management is "the end-to-end continuous process that describes the systematic creation, acquisition, integration, distribution, application and archiving of knowledge to drive behavior and actions which support organizational objectives and mission accomplishment."[5] According to Tzortzaki and Mihiotis, "knowledge management is a trend in progress with limited scope because of the lack of research background and conceptualism."[6] For the USAF, understanding the concept of knowledge management is just as important as aligning key processes with required work to achieve optimal results.[7]

In addition, classifying information into categories of knowledge to further the operations of the USAF is equally important to managing information. For example, when key individuals transition from current USAF locations to new locations, a mechanism must be in place to capture the knowledge. Rechberg and Syed argued that knowledge management is complex because "knowledge is difficult to be located or appropriated and its development may rather

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suffer through the attempt to manage it."[8] For this reason, Mciver, Lengnick-Hall, and Ramachandran contend that management must "become flexible enough to conform to the complexity of knowledge, adopting an innovative view on management to facilitate knowledge processes, by giving voice to the individuals meant to participate in the practices."[9] Mciver et al. also suggest the "primary advantage of creating and using stable routines in enacted information work contexts is the improved ability to capture and apply information-based knowledge to maximize replication and efficient productivity."[10]

In the USAF, innovative concepts are present in many aspects of the service but agile solutions differ depending on the type of jobs and locations. Establishing a strong foundation for knowledge management is not just an idea for the USAF, it is a goal. For instance, the Air Education and Training Command (AETC) listed knowledge management as one of the three concepts required for future education and training in the USAF.[11] To gain a better understanding of efforts to promote knowledge management, the study included a history of knowledge management in the USAF.

History of Knowledge Management in USAF

Over the years, the USAF experienced success with the implementation of numerous knowledge management systems. The USAF broadened its views of knowledge management with advancements in technology. These efforts resulted in the introduction of Air Force Knowledge Now, Web 2.0, Microsoft SharePoint, All Partners Access Network, and Microsoft Office 365. Each effort represented innovative solutions but did not rectify knowledge management issues for the USAF.

In 2004, to provide a solution similar to knowledge management efforts employed by the Army and Navy, the USAF introduced the Air Force Knowledge Now (AFKN). According to

USAF officials, AFKN provided "users with the resources to collaborate and create individualized communities of practice".[12] The deployment of AFKN appeared to be the best solution for the USAF to improve knowledge management awareness, operate as a knowledge management tool, and resolve organizational issues.[13] However, as with many knowledge management programs, AFKN did not prove to be a viable solution for the USAF because of multiple discrepancies limiting support and training options.[14] Other concerns related to the use of AFKN as a knowledge management system for the USAF involved lack of senior leaders support and limited funding to maintain the system.[15] Although the AFKN represented one option, the USAF explored other options to solve knowledge management issues such as the implementation of Web 2.0.

In an attempt to enhance knowledge management, the USAF introduced Web 2.0.[16] Under Web 2.0, the USAF had an opportunity to evaluate its approach to knowledge management. During the evaluation process, USAF officials identified two problems. The first problem highlighted a lack of officer education, which signified a reduction of formal training. To expand on the first problem, the second issue dealt with the frequent transitioning of USAF officers.[17] This was a significant problem for the USAF because frequent transition led to the instability of key processes; especially, the standardization of knowledge management efforts.

As a result of its findings, the USAF identified lessons learned to avoid making the same mistakes while seeking a knowledge management tool. The lessons learned during the evaluation of the knowledge management tool required USAF personnel to understand what they would like to accomplish prior to implementation, identify benefits to potential users, avoid forcing one specific option for users, evaluate social networking, provide experts, promote quality, and effectively communicate changes.[18] In an effort to seek an effective knowledge management

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system, the USAF continues to explore a number of options used by Department of Defense (DOD) organizations such as Microsoft SharePoint, All Partners Access Network, and Microsoft Office 365.

The USAF exploration of Microsoft SharePoint represents a variation from AFKN and Web 2.0. In DOD, the use of Microsoft SharePoint provides unlimited capabilities for knowledge management. According to Rogne, Microsoft SharePoint provides excellent benefits because its "capabilities are laid out with a number of collaborative resources available within its host of services such as Blogs, eChirp, Inteldocs, Intellipedia, IVideo, and more".[19] The use of Microsoft SharePoint also eliminates the need for subject matter experts to manage the technology.[20] Although it appeared to be a solution for the USAF, little evidence is available to determine if the capabilities of previous systems like AFKN will migrate with Microsoft SharePoint.[21] The USAF has an opportunity to continue evaluating the appropriateness of Microsoft SharePoint while examining the DOD All Partners Access Network.

As a member of the community, the USAF has unlimited opportunities to adopt DOD products. With the rise of technology among DOD organizations, the USAF must continue to examine how its processes and systems will communicate with others systems. For example, the All Partners Access Network (APAN) is "an unclassified, non-dot-mil collaborative network providing interoperability and connectivity among partners over a common platform."[22] This maybe a solution for the USAF but it presents a possible risk based on the lack of a military network. However, the APAN may include a flexible resource for knowledge management of non-mission critical information and transmitting unclassified data external to the US, which has similar capabilities to Microsoft Office 365.

Perhaps the most innovative solution applied by the USAF was Microsoft Office 365. As a joint effort with the Defense Logistics Agency (DLA), the USAF acquired Microsoft Office 365 to enhance "access to secure email and unified capabilities."[23] This technology also afforded the USAF with an opportunity to expand its current knowledge management capabilities. For instance, Microsoft Office 365 provided the USAF with "instant access to secure email and unified capabilities that enable real-time conversations can make all the difference when it comes to responding to threats at a moment's notice or nimbly managing service-wide logistics."[24] Adopting Microsoft Office 365 was a step in the right direction as the USAF continues to use the AF Portal.

As a web-based solution, the AF Portal increases the availability of information for USAF personnel located in the continental US and around the world. The fundamental use of the AF Portal is "to quickly find authoritative, relevant data and information, applications and collaboration tools," however, it does not represent a knowledge management system.[25] In other words, the AF Portal functions as an intranet providing a resource for sharing information across the USAF. [26] Considering the accessibility of the AF Portal, the USAF has unlimited opportunities to explore current findings in knowledge management to identify a viable solution.

Current Findings in Knowledge Management

As advances in technology continue to occur, the USAF must adopt more innovative and agile solutions to meet future challenges in knowledge management. This solution must represent a combination of old and new approaches to knowledge management to incorporate internet-based information and security. For example, Google Vice President, Vinton Cerf recommended a concept called the digital vellum for knowledge management in the future. This

idea represents capturing the digital footprint of technology to recreate a digital environment for preserving knowledge for future reproduction similar to the archiving internet sites.[27]

During a conference at the American Association of the Advancement of Science, Cerf warned of losing all data create in the 21st century in the absence of a solution to capture and store information.[28] Taking into consideration the warning by Mr. Cerf, the USAF has an opportunity to explore far beyond the basic realms of knowledge management systems. Gustafson and Hoopengardner agreed that knowledge management in the USAF must encompass the "people who share a mandate to collaborate in cyberspace, internet resources, and processes that set the framework and standards for collaboration,"[29] similar to the concept of a digital vellum. The idea of storing information like an Internet archive site presents a bold approach to knowledge management with enhanced security; however, the LAGAN Web Self-Service provides another viable solution for the USAF to consider.

Like the digital vellum, LAGAN Web Self-Service is also an internet-based solution to knowledge management. Explicitly, the LAGAN Web Self-Service: Knowledge Management is specifically designed for large public sector organizations. This knowledge management system affords unlimited opportunities to "manage, search and retrieve an unparalleled quantity of ever-changing information."[30] The LAGAN Web Self-Service: Knowledge Management can also provide the USAF with a change to improve current knowledge management capabilities, flexibility, real-time indexing, and multichannel reporting.[31] This option presents additional features and a creative approach to knowledge management for the USAF similar to INSITE.

Another advancement and option for the USAF to consider in the area of knowledge management is INSITE. For knowledge management, INSITE offers information technology departments a platform to "deploy a world-class service desk solution, proactively manage IT

assets and measure and track results."[32] Like LAGAN Web Self-Service, INSITE is web-based

and allows for flexible management of information. Despite the similarities, INSITE adds

additional features such a large knowledge database, change management workflow, release

management for enhanced security, and problem management.[33] The INSITE approach to

knowledge management expands functionality with the use of Cloud services. Adopting INSITE

may provide an all-inclusive approach to bridge any potential gaps for future knowledge

management. INSITE and the other options may complement the USAF efforts to identify a

viable solution and coincide with the theoretical construct of knowledge management.

Theoretical Construct

The theoretical foundation for this qualitative hermeneutics study centered on the

principles outlined under knowledge-based theory. According to Nickerson and Zenger, the

objective of knowledge-based theory is to continue the discovery of "new knowledge or new

solutions that form from unique combinations of existing knowledge."[34] Under knowledge-based

theory, Nickerson and Zenger indicated "the key knowledge-based question the manager faces is

not how to organize to exploit already developed knowledge or capability, but rather how to

organize to efficiently generate knowledge and capability."[35] Under this construct, knowledge is

considered the primary asset for organizations. Rechberg and Syed argued that "knowledge, even

if coded in IT systems, originates through individuals and it is only through individuals' use of

IT systems that the system can add value to KM."[36] This idea provides a different angle to

knowledge management because it separates the actual system from the individual. In contrast,

Tan, Carrillo, Anumba, Bouchlaghem, Kamara, and Udeaja contended that knowledge

management consists of processes or stages which coincide with knowledge-based theory.[37]

When considering the vast amount of information present in the USAF, understanding knowledge-based theory is of the utmost importance. In many instances the application of knowledge-based theory aligns with modern theories that promote organizational performance and success through effective knowledge management.[38] By applying this theory to knowledge management, the USAF has unlimited opportunities to capture and store information from its personnel, key documents, and policies. Most important, knowledge-based theory establishes a foundation for the USAF to synchronize existing and new information with an appropriate knowledge management system. In addition to applying knowledge-based theory, the USAF must also adopt an adequate research methodology to explore knowledge management in more detail.

Research Methodology

The purpose of this qualitative hermeneutics study was to determine through content analysis of historical data how the United States Air Force (USAF) can sustain its knowledge base by identifying a specific problem in relation to capturing, availability, and safeguarding knowledge based on multiple factors outlined in documents retrieved from primary USAF organizations. In this study, the research methodology represented an emerging design based on broad contingencies to aid in the collection of data and analytical decisions.[39] To support this study, the research methodology included a description of research questions, research design, the researcher's role, data collection, and data analysis.

Research Questions

Within the scope of the research, the key aspects of knowledge management were explored using a primary and multiple sub-research questions. This qualitative hermeneutics study explored the following research questions:

1. Primary Research Question: What should the USAF do to make us more innovative an agile?

2. Sub-Research Questions: What policies and processes can we streamline to make our research efforts more agile? How is information captured in the USAF? Is there a more innovative way of sustaining the knowledge base of USAF?

Research Design

To explore the concept of knowledge management in more detail, the use of a hermeneutics approach was appropriate. This type of approach provided further insight into the historical and relational complexities of a phenomenon.[40] Hermeneutics provided numerous examples because it "is conceived of as the philosophy of understanding and the science of textual interpretation, and thereby has a two-fold interest."[41] Congjun implied that "hermeneutics is the method for deciphering indirect meaning, a reflective practice of unmasking hidden meanings beneath apparent ones."[42] When considering the nature of the study, using a qualitative hermeneutic study aided in demonstrating the importance of knowledge management; and included options for the USAF to consider while seeking a viable solution to knowledge management to include identifying the researcher's role.

The Researcher's Role

A qualitative hermeneutic study focuses on meaning and requires "a data collection instrument that is sensitive to underlying meaning when gathering and interpreting data."[43] In a qualitative hermeneutic study, the researcher is the primary data collection instrument responsible for the integrity of information.[44] To preserve the validity and reliability of the study, the researcher must exhibit creditable behavior. In this study, the researcher demonstrated credibility based on the gathering and interpretation of data.[45] This was important because failure

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by the researcher to maintain integrity while conducting research discredits the study, which does not contribute to the field of knowledge management or the efforts of the USAF along with proper identification of valid data sources.

Data Collection

In this qualitative hermeneutics study, data collection was of the utmost importance. Data collection refers to the method used by the researcher to obtain information to support the study. Data collected for this study included the retrieval of information from multiple academic journals, books, internet sources, and historical USAF documents. The primary source documents originated from the following USAF organizations:

1. Air Combat Command Communications Support Squadron (ACC CSS)

2. Air Education and Training Command (AETC)

3. Air Force Chief Scientist (AF/ST)

4. Air Force Institute of Technology (AFIT)

5. Air Force Material Command (AFMC)

6. Assistant Secretary of Air Force Financial Management and Comptroller (SAF/FM)

Selecting these types of sources coincides with the premise of a qualitative hermeneutics study because the information allows for further exploration of the content and meaning.[46] The availability of information to support the study increased with the selection of multiple data sources and simplified the data collection process. Identifying proper information for data collection established a platform for quality research and provided an opportunity to ensure accurate data analysis. After data collection, Section four includes a discussion of the study findings based on the data analysis strategy and coding.

Findings

The purpose of this qualitative hermeneutics study was to determine through content analysis of historical data how the United States Air Force (USAF) can sustain its knowledge base by identifying a specific problem in relation to capturing, availability, and safeguarding knowledge based on multiple factors outlined in documents retrieved from primary USAF organizations. For this study, the findings included a discussion of the data analysis strategy and data coding results. The results represented information generated to answer the primary research and sub-research questions.

Data Analysis Strategy

In a qualitative hermeneutic study, the data analysis strategy must include a clear and concise method to properly assess collected data. By using the inductive approach, the researcher identified similarities in the data obtained to derive meaning from the information.[47] To maintain consistency throughout the study, NVivo 11 was the tool applied to analysis the data. This type of tool simplifies data analysis by offering "advanced data management, query and visualization tools, so you can ask complex questions of your data."[48] To support the study, using NVivo 11 aided in properly analyzing the data by categorizing key concepts for data coding.

Data Coding

For this study, the coded categories centered on the primary and sub-research questions that focused on a more innovative and agile, streamlined approach to knowledge management for the USAF. After coding the data collected from multiple sources, key concepts answered the research questions. Each concept represented the core themes outlined throughout the study based on an open code and properties, which resulted in a total of four to support the primary

research question, three for the first sub-research question, one for the second, and two for the third.

The primary research question "what should the USAF do to make us more innovative and agile?" generated the following concepts: knowledge management, management support for knowledge management, key technologies for knowledge management, and innovative and agile solutions to knowledge management. Table 1 (See Appendix) represents the commonalities amongst the various themes identified to support the primary research question.

Data collection for the first sub-research question "what policies and processes can the USAF streamline to generate more agile research efforts?" generated three concepts: knowledge management policies and processes, availability of knowledge, and safeguard of knowledge. Table 2 (See Appendix) represents the commonalities amongst the various themes identified to support the first sub-research question.

The second sub-research question "how is information captured in the USAF?" generated multiple approaches by the USAF. Table 3 (See Appendix) represents the commonalities amongst the various themes identified to support the second sub-research question.

The third sub-research question "is there a more innovative way of sustaining the knowledge base of the USAF?" generated two key concepts: knowledge capture and sharing and innovative solutions to knowledge management. Table 4 (See Appendix) represents the commonalities amongst the various themes identified to support the third sub-research question. The next section includes the discussion of the research question findings, conclusions, recommendations, and a summary.

Discussion

The purpose of this qualitative hermeneutics study was to determine through content analysis of historical data how the United States Air Force (USAF) can sustain its knowledge base by identifying a specific problem in relation to capturing, availability, and safeguarding knowledge based on multiple factors outlined in documents retrieved from primary USAF organizations. Results of the study generated specific answers to the primary and sub-research questions. For this study, the discussion includes responses to the research questions, provides specific conclusions, recommendations and a summary.

Research Questions

This qualitative hermeneutics study examined the following research questions:

1. **Primary Research Question:** What should the USAF do to make us more innovative an agile? Data analysis produced detailed responses to the primary research question as listed below:

a. For the concept of knowledge management, the research identified a clear need for the USAF to implement a formal knowledge management program to encompass all information related to the mission critical functions of the USAF. Although the USAF adopted the Air Force Knowledge Now (AFKN) as a possible solution, it was later determined that the AFKN was not sufficient to meet all knowledge management needs of the USAF. In addition, the research also presented an opportunity for USAF leadership to take a more open-minded approach to knowledge management.

b. Under the concept of management support of knowledge management, the research highlighted an unawareness of knowledge management requirements and lack of support by USAF leadership. In addition, the research also identified an apparent need for management to

spearhead the efforts to promote knowledge management processes and to determine the best solutions for the USAF.

c. To facilitate a discussion of key technologies for knowledge management, the research placed emphasis on the importance of adopting up-to-date technology to support the USAF knowledge management efforts. The research also establishes a clear view of why the USAF must examine the effectiveness of any knowledge management technology to ensure it supports operational capabilities and provides a solution that includes revamped knowledge management processes.

d. For the concept of innovative and agile solutions to knowledge management, the research highlighted how the USAF must identify an efficient, cost effective, and agile solution to knowledge management. In addition, the solution must be flexible and viable to interact with existing technology.

2. **Sub-Research Question 1:** What policies and processes can we streamline to make our research efforts more agile? Data analysis produced detailed responses to the first sub-research question as listed below:

a. Under the concept of knowledge management policies and processes, the research described why the USAF must establish all-inclusive policies and processes for knowledge management to encourage adequate flow of information, knowledge sharing, capturing, and utilization by key personnel. In addition to establishing policies and processes, the research also identified the need to formulate maintenance and sustainment procedures for long-term knowledge management efforts. The research also highlighted potential barriers in AFKN that limit effective knowledge management efforts for the USAF.

b. For the concept of availability of knowledge, the research identified how AFKN provides a web-based resource for the availability of information but does not include a solution for transitioning personnel such as change of duty stations, retirements, or even terminations. The research suggested a need for the USAF to build a culture conducive of sharing knowledge to avoid limited access by a small number of personnel. The research also identified a need to promote quality knowledge transfer across the entire USAF.

c. Exploring the concept for safeguard of knowledge, the research demonstrated a number of inconsistencies in how knowledge is kept throughout the USAF along with key lessons learned. The research highlighted the need for a single repository and solutions for proper safeguarding of mission critical and classified information.

3. **Sub-Research Question 2:** How is information captured in the USAF? Data analysis produced detailed responses to the second sub-research question as listed below:

a. The USAF does not execute a single approach to capture mission critical information.

b. The approaches for capturing information ranged from using AFKN, web-based servers, and Air Force Portal, which does not include adequate capability for content management.

4. **Sub-Research Question 3:** Is there a more innovative way of sustaining the knowledge base of USAF? Data analysis produced detailed responses to the third sub-research question as listed below:

a. Knowledge capture and sharing, the research demonstrated the importance of establishing a centralized location for knowledge capture to include fully integrating USAF personnel into the knowledge management process. Another key theme under this concept was

encouraging people to share information by bridging the gap between the knowledge

management system, processes, and the people. In addition, the research also highlighted the

significance of transferring knowledge in the USAF.

       b. For the concept of innovative solutions to knowledge management, the research

identified multiple suggestions from previous research conducted of USAF knowledge

management processes and systems. The research also identified why adopting the right

approach to knowledge management can transform the USAF into a more agile force with a

modern-day solution to knowledge management.

      Each research question explored in the study centered on the problem indicating the lack

of a single knowledge management system to capture knowledge in the USAF. As mentioned

previously, specific concepts resulted from the coded data to provide focal points of discussion.

An analysis of coded data produced detailed responses to the research questions and aided in

generating realistic conclusions for the study.

Conclusions

      Previous studies conducted by USAF organizations identified inconsistencies in

knowledge management processes and systems. Study findings highlighted the need for more

support by USAF managers to promote knowledge management efforts and to acquire proper

technology. Historical data also identified limitations of USAF systems that constrain proper

knowledge management. Although study findings indicate areas of improvement for USAF

knowledge management processes, the acquisition of technology to support efforts must

represent cost effective and reliable systems. Most important, to enhance knowledge

management efforts for future operations, senior leadership must ensure compliance throughout

USAF organizations and consider accepting the study recommendations.

Recommendations

      The scope of the research focused on knowledge capture, availability, and safeguard. A qualitative hermeneutics study was used to argue that with numerous advancements in technology, the USAF must adopt a streamlined approach to knowledge management centered on a more innovative and agile solution to capture, increase availability, and safeguard mission essential information. Future studies may explore the impacts of inadequate knowledge management on the mission of the USAF. Another recommendation for future study may involve a quantitative study to quantify notable effects of poor knowledge management in relation to USAF mission requirements and DOD requirements.

      Study findings aided in identifying opportunities for USAF to consider while revamping knowledge management procedures and systems: 1) demonstrating full USAF management support for knowledge management, 2) acquiring a knowledge management system to operate throughout the cyber community, 3) educating all USAF organizations on the same knowledge management process and system, 4) developing a culture that incorporates knowledge management, and 5) focusing on a single solution to knowledge management based on study findings.

Summary

      The qualitative hermeneutics study determined through historical data how the USAF can sustain its knowledge based by identifying a specific problem in relation to capturing knowledge based on multiple factors. A literature review for the study outlined topics of knowledge management, history of knowledge management in the USAF, current findings in knowledge management, and included the theoretical framework. Based on the findings, the USAF has numerous opportunities to reevaluate its knowledge management processes and systems to

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sustain its knowledge base for future operations. Upon acceptance of the proposed

recommendations, the USAF will have an opportunity to adopt a more streamlined approach to

knowledge management centered on a more innovative and agile solution to capture, increase

availability, and safeguard mission essential information to sustain its knowledge base for future

operations.

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Appendix

Table 1: *Data coding for primary research question*

Open Code	Properties
Knowledge management (KM)	• Formalizing KM • Air Force KM • Managing KM
Management support of KM	• Role of management in KM • Air Force management support for KM
Key technologies for KM	• Adopting up-to-date technology for KM • Evaluating KM technology and options
Innovative and agile solutions to KM	• Identifying efficient method for KM • Developing flexible solutions for KM • KM solution to enhance existing system • Creating a viable solution for KM

Table 2: *Data coding for first sub-research question*

Open Code	Properties
KM policies and processes	• Merging KM systems with processes • Establishing KM policies and processes • Understanding how KM adds value
Availability of knowledge	• Increasing accessibility to critical information • Accessing information in AF
Safeguard of knowledge	• Recognizing problems with KM methods

Table 3: *Data coding for second sub-research question*

Open Code	Properties
Air Force (AF) information capture	• Identifying how the AF captures knowledge

Table 4: *Data coding for third sub-research question*

Open Code	Properties
Knowledge capture and sharing	• Establishing centralized location for KM • Determining how to integrate people into KM • Encouraging information sharing for KM • Building bridge for KM, processes, and people • Highlighting significance of knowledge transfer
Innovative solutions to KM	• Recommending solutions for KM